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40947 7590 05/16/2007 rudoler & derosa llc ATTN: DOCKET CLERK 2 BALA PLAZA, SUITE 300 BALA CYNWYD, PA 19004			EXAMINER KENNEDY, ADRIAN L	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/645,982	Applicant(s) THOMPSON, DEAN S.	
	Examiner Adrian L. Kennedy	Art Unit 2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Examiner's Detailed Office Action

1. This Office Action is responsive to **Amendment After Non-Final Rejection**, filed **February 9, 2007**.
2. **Claims 1-20** were originally presented.
3. **Claim 9** is canceled.
4. **Claims 1-8 and 10-20** will be examined.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8 and 10-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pelikan et al. (USPN 7,047,169) in view of Yoshida et al. (USPN 6,263,325).

Regarding claim 1:

Pelikan et al. teaches

(original) A method of constructing at least one computer program that solves a problem
(The examiner takes the position that the construction of a computer program that solves a problem is inherent in Pelikan et al. teaching his invention being a method and program products for generating and optimizing solutions to a problem in Column 3, Line 52-63),
comprising the steps of:

defining (C 3, L 57-63; “*generating*”) a set of traits (C 3, L 57-63; “*first set of solutions*”) in which each trait characterizes a portion of a solution algorithm to the problem C 3, L 52-54; “*solution set for a problem*”);

providing an implementation (C 3, L 52-54; “*products for optimizing*”; The examiner takes the position that the implementation is the method used to solve the problem or optimize the solution for at least one of the defined programming interfaces. Additionally, the examiner takes the position that for each solution set, the implementation for each solution set is inherent in how the solution set is defined, and how the set is to be applied to the problem to be solved) for at least one of the defined programming interfaces;

specifying a subtrait (C 3, L 57-63; “*second set from the first*”) associated with at least one of the traits (C 3, L 57-63; “*first set of solutions*”) or the implementations (C 3, L 52-54; “*products for optimizing*”);

selecting a top-level trait (C 3, L 57-63; “*first set of solutions*”) that characterizes a solution to the problem;

selecting a top-level implementation (C 3, L 52-54; “*products for optimizing*”) for the top-level trait;

selecting an implementation for each subtrait (C 3, L 57-63; “*second set from the first*”) required for the top-level trait or the top-level implementation;

recursively (The examiner takes the position that the solution generating and optimizing method continually generates solution sets by recursively calling itself. Furthermore, in explicitly stating that a second solution set is derived from a first

solution set (C 3, L 57-63), and that the solution set generation method repeats until a termination criteria is met (C 3, L 12-13), it is inherent that the solution generation step is recursive) selecting an implementation (C 3, L 52-54; *"products for optimizing"*) for each subtrait (C 3, L 57-63; *"second set from the first"*) associated with at least one of the traits (C 3, L 57-63; *"first set of solutions"*) or the implementations (C 3, L 52-54; *"products for optimizing"*) in order to construct a trait hierarchy (C 4, L 20-24; *"hierarchical relationships"*) that forms a computer program for solving the problem.

Pelikan et al. does not teach defining a programming interface.

The examiner takes the position that an implementation is a method of solving a problem and that a top-level trait is any solution or set of solutions that acts as a parent to any other solution sets. Additionally, the examiner takes the position that the implementation as claimed by the applicant is the method of applying a trait or subtraits to solving the problem.

However, Yoshida et al. does teach

The defining of a programming interface [C 4, L 8-15; *"user terminal"*] for at least one of the traits.

The examiner takes the position that in regards to this argument, that the terms "interface" and "terminal" are equivalent in the applicant's claimed invention and the invention of Pelikan et al. This position is supported by the fact that the applicant's claimed "programming interface" is a means for allowing a user or algorithm to define alternative implementations of a trait (Applicant's Disclosure; P 0043; *"There can be*

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multiple implementations of each trait, so long as each trait implementation adheres to the interface. This allow as alternative implementation of each trait to be selected by a human user or an optimization algorithm") and the "terminal" is a means for allowing a user or algorithm to define (i.e. implement) alternatives of a solution (i.e. traits) (Yoshida et al.; C 4, L 6-17; *"a still further device according to the present invention (such as a user terminal) comprises a processing unit for setting at least either of an execution and a step progress controlling method of the learning algorithm"*; The examiner asserts that in controlling the learning algorithm, new solutions are generated). Additionally, the examiner takes the position that the "programming interfaces" of the applicant's claimed invention act as links between various traits, and that the "terminal" of the invention of Yoshida et al. acts as a link between solutions by linking the steps in the learning algorithm

It would have been obvious to one skilled in the art at the time of invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem (Yoshida et al. (USPN 6,263,325); C 1, L 8-11; *"obtaining an optimum solution or promising solutions to a problem"*)

Regarding claim 2:

Pelikan et al. teaches

(original) The computer program constructing method wherein the at least one trait (C 3, L 57-63; *"first set of solutions"*) comprises a plurality of traits (C 3, L 57-63; *"second set from the first"*).

Regarding claim 3:

Pelikan et al. teaches the defining (C 3, L 57-63; "*generating*") of traits (C 3, L 57-63; "*first set of solutions*").

Pelikan et al. does not teach computer programming.

However, Yoshida et al. does teach

A computer programming interface (C 4, L 8-15; "*user terminal*").

It would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem (Yoshida et al.; C 1, L 8-11; "*obtaining an optimum solution or promising solutions to a problem*").

Regarding claim 4:

Pelikan et al. teaches the use of varying implementations (C 3, L 52-54; "*products for optimizing*"). Pelikan et al. does not teach the use of a programming interface.

However, Yoshida et al. does teach

A computer programming interface (C 4, L 8-15; "*user terminal*").

The examiner takes the position that the invention of Yoshida et al. facilitates the use of varying implementations depending on which what the user defines in the terminal.

Therefore, it would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al.

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for the purpose of solving a problem (Yoshida et al.; C 1, L 8-11; *"obtaining an optimum solution or promising solutions to a problem"*).

Regarding claim 5:

Pelikan et al. teaches

(original) The computer program constructing method wherein the subtrait (C 3, L 57-63; *"second set from the first"*) comprises a plurality of subtraits (C 3, L 57-63; *"third set of solution"*).

Regarding claim 6:

Pelikan et al. teaches

(original) The computer program constructing method wherein the subtrait (C 3, L 57-63; *"second set from the first"*) comprises a plurality of subtraits,

Regarding claim 7:

Pelikan et al. teaches

(original) The computer program constructing method wherein the top-level trait (C 3, L 57-63; *"first set of solutions"*) comprises a plurality of top-level traits.

The examiner takes the position that the second set of solutions taught by Yoshida et al qualify as top-level traits because they can act as parents to another set of traits.

Regarding claim 8:

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Pelikan et al. teaches

(original) The computer program constructing method wherein the top-level trait (C 3, L 57-63; *"first set of solutions"*) comprises a plurality of top-level traits (C 3, L 57-63; *"second set from the first"*).

The examiner takes the position that the second set of solutions taught by Yoshida et al qualify as top-level traits because they can act as parents to another set of traits.

It would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem (Yoshida et al.; C 1, L 8-11; *"obtaining an optimum solution or promising solutions to a problem"*).

Regarding claim 10:

Pelikan et al. teaches

(original) The computer program constructing method wherein the subtraits (C 3, L 57-63; *"second set from the first"*) are associated with at least one of the traits (C 3, L 57-63; *"first set of solutions"*), the implementation (C 3, L 52-54; *"products for optimizing"*), or both.

Regarding claim 11:

Pelikan et al. teaches

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(original) The computer program constructing method according wherein the subtrait (C 3, L 57-63; *"second set from the first"*) is one of the defined set of traits (C 3, L 57-63; *"first set of solutions"*).

Regarding claim 12:

Pelikan et al. teaches

(original) The computer program constructing method wherein the subtraits (C 3, L 57-63; *"second set from the first"*) associated with the traits (C 3, L 57-63; *"first set of solutions"*), the implementation (C 3, L 52-54; *"products for optimizing"*), or both.

It would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem (Yoshida et al.; C 1, L 8-11; *"obtaining an optimum solution or promising solutions to a problem"*).

Regarding claim 13:

Pelikan et al. teaches

(original) The computer program constructing method according method claim 4, furthermore comprising the steps of:

implementing an evaluation module (C 3, L 54-57; *"iterative process"*) that executes a constructed computer program in order to determine its effectiveness in solving the problem (C 3, L 52-54; *"optimizing a solution set for a problem"*);
and

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applying an optimization technique (C 3, L 52-54; “*program product for optimizing*”) that carries out the steps to generate at least one computer program that solves the problem (C 3, L 54-63; “*population of candidate solutions*”), and that uses feedback from the evaluation module to generate at least one additional computer program that better solves the problem.

It would have been obvious to one skilled in the art at the time of applicant’s invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem (Yoshida et al.; C 1, L 8-11; “*obtaining an optimum solution or promising solutions to a problem*”).

Regarding claim 14:

Pelikan et al. teaches

(original) The computer program constructing method wherein the optimization technique (C 3, L 52-54; “*program product for optimizing*”) is selected from the group consisting of simulated annealing, an evolutionary algorithm, and a particle swarm optimization.

The examiner takes the position that by not specifically disclosing his method of optimization, Pelikan et al anticipates the claiming of specific optimization algorithms in applicant’s claimed invention. Furthermore, it would have been obvious to one skilled in the art at the time of applicant’s invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem (Yoshida et al.; C 1, L 8-11; “*obtaining an optimum solution or promising solutions to a problem*”).

Regarding claim 15:

Pelikan et al. does not teach allowing a user to interactively choose which trait implementations are favored at each point.

However, Yoshida et al. does teach

(original) The computer program constructing method further comprising the steps of:
allowing a user to interactively choose (C 4, L 8-15; “*user terminal*”) which trait implementations are favored or excluded at each point in each alternative computer program created by the optimization technique.

It would have been obvious to one skilled in the art at the time of applicant’s invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem (Yoshida et al.; C 1, L 8-11; “*obtaining an optimum solution or promising solutions to a problem*”).

Regarding claim 16:

Pelikan et al does not teach an implementation interface that provides information about a trait implementation. Pelikan does teach the use of various traits (C 3, L 57-63; “*first set of solutions*”) and subtraits (C 3, L 57-63; “*second set from the first*”).

However, Yoshida et al. does teach

(original) The computer program constructing method further comprising the steps of:

defining at least one self-describing method as part of the trait implementation's interface that provides information about the trait implementation (C 3, L 25-34; "*object means*") or its associated subtrait; and implementing (C 3, L 54-57; "*iterative process*") the at least one self-describing method as part of the trait implementation.

The examiner takes the position that optimization algorithms and solutions generated by optimization algorithms are inherently describe their own structure. Additionally, the examiner takes the position that the iterative process is the actual implementation of the various optimization methods, traits and subtraits.

It would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem (Yoshida et al.; C 1, L 8-11; "*obtaining an optimum solution or promising solutions to a problem*").

Regarding claim 17:

Pelikan et al. does not teach the using of at least one self-describing method in a user interface to provide descriptions and other detailed information about the constructed solution algorithm.

However, Yoshida et al. does teach

(original) The computer program constructing method C 3, L 25-34; "*algorithm*") further comprising the steps of:

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using the at least one self-describing method in a user interface (C 3, L 25-34;

“displaying unit”) to provide descriptions and other detailed information (C 4, L

8-15; *“execution condition”*) about the constructed solution algorithm.

It would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem (Yoshida et al.; C 1, L 8-11; *“obtaining an optimum solution or promising solutions to a problem”*).

Regarding claim 18:

Yoshida et al. teaches

(original) The computer program constructing method according to claim 16, further comprising the steps of:

using the at least one self-describing method (Yoshida et al.; C 3, L 25-34;

“algorithm”) in an optimization technique (Yoshida et al.; C 1, L 8-11;

“obtaining an optimum solution”) to assist in the creation of alternative computer programs.

It would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem (Yoshida et al.; C 1, L 8-11; *“obtaining an optimum solution or promising solutions to a problem”*).

Regarding claim 19:

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Pelikan et al does not teach the use of an interactive development environment.

However, Yoshida et al. does teach

(original) The computer program constructing method according to claim 16, further comprising the steps of:

using the at least one self-describing method (Yoshida et al.; C 3, L 25-34; “*algorithm*”) in an interactive development environment (C 3, L 2-4; “*change processing unit*”) to assist a user in assembling computer programs.

It would have been obvious to one skilled in the art at the time of applicant’s invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem (Yoshida et al.; C 1, L 8-11; “*obtaining an optimum solution or promising solutions to a problem*”).

Regarding claim 20:

Pelikan et al. teaches

(original) A system for constructing at least one computer program that solves a problem, comprising:

means for defining (C 3, L 57-63; “*generating*”) a set of traits (C 3, L 57-63; “*first set of solutions*”) in which each trait characterizes a portion of a solution algorithm to the problem (The examiner previously established that a solution set can consist of a partial set of solutions);
a subtrait (C 3, L 57-63; “*second set from the first*”) associated with at least one of the traits or the implementations;

Pelikan et al. does not teach a programming interface and a means for selecting and recursively selecting. Pelikan et al. does teach top-level traits, subtraits and implementations.

However, Yoshida et al. does teach

A means for selecting (C 3, L 2-4; "*change processing unit*") and a programming interface (C 4, L 8-15; "*user terminal*").

It would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem (Yoshida et al.; C 1, L 8-11; "*obtaining an optimum solution or promising solutions to a problem*").

Response to Arguments

Applicant's arguments filed on February 9, 2007 have been fully considered but are found to be non-persuasive. The unpersuasive arguments made by the Applicant are stated below:

In reference to Applicant's argument:

Claim 1 recites a method of constructing at least one computer program comprising the step of "defining a programming interface for at least one of the traits." Neither Pelikan or Yoshida disclose, teach or suggest, alone or in combination, this claimed feature.

Examiner's response:

The examiner takes the position that in regards to this argument, that the terms "programming interface" and "terminal" are equivalent in the applicant's claimed invention and the invention of Yoshida et al. This position is supported by the fact that the applicant's claimed

“programming interface” is a means for allowing a user or algorithm to define alternative implementations of a trait (Applicant’s Disclosure; P 0043; *“There can be multiple implementations of each trait, so long as each trait implementation adheres to the interface. This allows alternative implementation of each trait to be selected by a human user or an optimization algorithm”*) and the “terminal” of Yoshida et al., is a means for allowing a user or algorithm to define (i.e. implement) alternatives of a solution (i.e. traits) (Yoshida et al.; C 4, L 6-17; *“a still further device according to the present invention (such as a user terminal) comprises a processing unit for setting at least either of an execution and a step progress controlling method of the learning algorithm”*); The examiner asserts that in controlling the learning algorithm, new solutions are generated). Additionally, the examiner takes the position that the “programming interfaces” of the applicant’s claimed invention acts as means for determining the implementation of various traits, and that the “terminal” of the invention of Yoshida et al. which acts as means for determining the implementation of various solutions. Finally, having not defined the term “programming interface” in that applicant’s specification, the examiner has resorted to outside sources to define the term.

In reference to Applicant’s argument:

Additionally and separately, Pelikan and Yoshida do not disclose the step of “recursively selecting an implementation for each subtrait associated with at least one of the traits or the implementations in order to construct a trait hierarchy that forms a computer program for solving the problem” of claim 1.

Examiner’s response:

The examiner has respectfully considered the applicant’s definitions in regards to the terms “iterative”, and “recursive”, but by not specifically disclosing a specific definition of these

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terms in the Applicant's specification, the examiner has resorted to an outside source to define the terms. According to Wikipedia (<http://en.wikipedia.org/wiki/Iterative>):

“...recursion is an example of iteration”

Furthermore, based on the definition, the examiner asserts that the process of Pelikan et al. is equivalent to the Applicant's claimed process.

In reference to Applicant's argument:

In addition, claims 1 and 20 define “a set of traits,” in which a trait is defined in the specification as characterizing “a portion of a solution.” Examiner relies on Pelikan to teach a “first set of solutions” or “solution set for a problem.” This is a set of complete candidate solutions to the target problem, where a “problem” is defined by Pelikan as being “a problem defined over discrete variables” and not a “solution algorithm” as defined by the claims.

Examiner's response:

The examiner takes the position that while the claims specifically, state that a trait “characterize[s] a portion of a solution”, the examiner takes the position that based on a reasonable interpretation of this teaching, it is possible for several “portions of a solution” (C 21, L 49-52) to be combined in a “set of traits” to make a complete solution.

In reference to Applicant's argument:

Claims 1 and 20 also define “selecting an implementation for each subtrait.” In contrast, the Examiner relies on Pelikan's “second set from the first” disclosure; however, this element means that a subset of the “first set of solutions” can be selected, each of which is a complete candidate solution for the target problem.

Examiner's response:

The examiner respectfully takes the position that Pelikan et al. does not teach that his “set of solutions” is a complete set of solutions. Furthermore, in his specification the replacing of only a portion of a solution set, which implies that every generated solution set isn’t a complete solution set. Additionally, the examiner takes the position that selecting an implementation for each subtrait (i.e. solution set) is equivalent to Pelikan et al. teaching the use of “niching” in Column 6, Lines 27-52, which changes the implementation of a solution set depending on the fitness landscape and the genotype or phenotype.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adrian L. Kennedy whose telephone number is (571) 270-1505. The examiner can normally be reached on Mon -Fri 8:30am-5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALK



Anthony Knight
Supervisory Patent Examiner
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